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(54) **ETHANOL PRODUCTION FROM LIGNOCELLULOSE**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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435/72; 435/99; 435/173.2; 435/173.8;
435/277; 435/278

(58) Field of Search **435/99, 165, 163,**
435/278, 277, 170, 72, 173.2, 173.8

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(57) **ABSTRACT**

This invention presents a method of improving enzymatic degradation of lignocellulose, as in the production of ethanol from lignocellulosic material, through the use of ultrasonic treatment. The invention shows that ultrasonic treatment reduces cellulase requirements by $\frac{1}{3}$ to $\frac{1}{2}$. With the cost of enzymes being a major problem in the cost-effective production of ethanol from lignocellulosic material, this invention presents a significant improvement over presently available methods.